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Docee River Counting Fence 1991 Operations

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Canadian Data Report of Fisheries and Aquatic Sciences

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ABSTRACT

Winther, I., S.K. Bachen, and R.D. Goruk. 1992. Docee River counting fence. 1991 Operations. Can. Data Rep. Fish. Aquat. Sci. 872. iv + 17 p.

The Docee River Counting Fence (Central Coast, B.C.) was operated from June 19 to August 8 of 1991. Managers operating the Smiths Inlet sockeye fishery use the inseason sockeye escapement data provided by the fence. In 1991, 260,000 sockeye were counted through the fence. Length and sex data were collected from 413 Docee River sockeye and age data were collected from 379 of these fish. Age 5_2 sockeye composed 57% of the fish sampled and age 4_2 sockeye composed 42% of the fish sampled. The sex ratio of all fish sampled was approximately 0.86 : 1. Fence and camp maintenance and operations are described.

RESUME

Winther, I., S.K. Bachen, and R.D. Goruk. 1992. Docee River counting fence. 1991 Operations. Can. Data Rep. Fish. Aquat. Sci. 872. iv + 17 p.

La barriere de comptage de la riviere Docee (dans la zone centrale du littoral de la Columbie-Britannique) a ete en operation du 19 juin au 8 aout 1991. Les gestionnaires de la peche au saumon rouge de l'inlet Smith utilise les donnees saisonnieres d'echappee reculillies a la barriere. La longueur et le sexe de 413 saumons rouges de la riviere Docee ont ete determines de meme que l'age de 379 saumons. Les saumons rouges d'age 5_2 representaient 57% des poissons echantillonnes et le groupe d'age 4_2 formait 42% des poissons. La proportion des sexes pour l'ensemble des poissons echantillonnes etait de 0.86 : 1.Les operations de maintenance de la barriere et des installations sont aussi decrites dans cet article.

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INTRODUCTION

The Docee River is located in the Central Coast District of British Columbia within Canadian Department of Fisheries and Oceans Statistical Area 10 (Figure 1). The Docee River is less than 1 kilometer long draining Long Lake into Wyclees Lagoon. Wyclees Lagoon empties north into Smith Inlet.

The Docee River counting fence has been in operation since 1972 (Winther et al, 1991, 1990, 1989, Bachen et al, 1988 a & b, Thomson and Goruk, 1988). A counting tower was in operation from 1962 to 1971 (Thomson and Goruk 1988, Wood, 1970). Sockeye escapements into Long Lake have been monitored to provide inseason estimates to Managers of the Smith Inlet sockeye fishery. The counting fence operates from late June or early July to mid August.

METHODS

Preparations and departure to Smith Inlet occurred earlier this season in anticipation of constructing a new cabin. On June 17th the first supplies from Prince Rupert were transported with the Sea Truck to the float in Wyclees Lagoon. A jet boat, fuel, equipment and supplies were picked up at the Machmell Fisheries camp and at Dawsons Landing and unloaded at the lagoon on June 19. Equipment and supplies were then transported up the skidder road to the fence and cabin site with a tracked A.T.V. and trailer. The Docee Camp was operated from June 19 to August 8, 1991.

CAMP MAINTENANCE

The original cabin at the Docee River fence was built in 1972 and required replacement. Approval for a new cabin was granted and a 20′ X 45′ prefabricated building by Pacific Homes was selected. The new building was designed and built to meet building code standards.

From June 19th to the 25th, preparations were made for the new cabin. On June 20th ready-mix cement freighted from Prince Rupert on the patrol vessel Robson Reef arrived outside the lagoon. It was picked up with the Sea Truck, transported to the lagoon float and then trailered to the building site. The new cabin site was selected on the point of land east of the existing cabin. Foundations were constructed and poured from June 21st to 23rd. On June 24th, Marine Link barge service arrived at the lagoon float with the new cabin and materials. These were air lifted to the cabin site by Canadian Helicopter. All materials were tarped in the yard. The cabin was constructed by D.F.O. staff (R. Goruk, I. Winther, S.K. Bachen) and two agency contractors during the counting program. Completion will be in the summer of 1992.

Maintenance to the old cabin was minimal this year. It was cleaned and made habitable while the new cabin was constructed.

The area around the camp and fence was cleared of brush and other debris. New logs were lashed to the shear boom and standing boom for extra support.

The hill at the bottom end of the skidder road, near the lagoon, will have to be repaired in 1992. It has become very steep and there is the potential of flipping the A.T.V., especially if towing the utility trailer. This hill may have to be decked to make it safe.

FENCE MAINTENANCE AND OPERATION

On June 25th river clearing and fence preparations were started. A small log jam and several large trees and root masses were removed from above the fence. A jet boat, power saw and block and tackle were used. Other debris were cleared from the lower end of the before the shear boom was put in place across the lake outlet.

Counting strips, fence frames and panels were cleared of old ropes, wire and other debris. New counting strips were installed and the lower frames were scraped and painted white. Expanded metal was secured to the bottom and sides of some frames to prevent fish from getting through. The aluminum fish traps were removed from the fence this year. These traps have been in operation since 1986 and have never successfully caught sockeye salmon. Fence frames were lowered and the fence was operational at 18:00 hours June 26. Sand bags filled with rocks were placed along the bottom front face of the fence to plug any holes that fish could get through.

The winch motor (to raise and lower frames), panel winches, cables and pullies were given an annual servicing. The fence was inspected and cleared of debris daily. New holes where fish could get through were repaired with wire and expanded metal or sand bagged as required.

Fish were counted through the fence by a two man crew working one hour shifts as described by Thompson and Goruk (1988). Sockeye caught and killed by the fence were removed each morning and sampled. Sampling consisted of recording sex, post orbital to hypural plate (hypural) length, tip of the nose to fork of the tail (nose/fork) length, and two scale samples from each fish. Scales were aged at the Scale Lab in Vancouver.

RESULTS & DISCUSSION

Table 1 and Figure 2 describe weather conditions and water levels recorded at the Docee River fence in 1991.

A record escapement of 260,000 ascended the Docee River to Long lake in 1991. Daily sockeye counts through the Docee River fence appear in Table 2. Figures 2 and 3 show daily and cumulative sockeye counts respectively. Although the fence was operational on June 26 no fish were counted until June 30. Counts remained low until July 5. Subsequent counts were erratic with 4 days recording over 20,000 sockeye; July 13, 23, 28 and 29. Only two chinook passed through the fence but both returned to the river below the fence almost immediately.

A record of 454,290 sockeye were caught in 30 days of commercial fishing in Area 10 as estimated by field catch data (Table 3). No Indian Food Fish landings were recorded. The total stock returning to Long Lake in 1991 was 714,290 sockeye.

Samples were collected from 413 sockeye. Table 4 presents a summary of the age and length frequency data. Age 5_2 sockeye represented 57% and age 4_2 sockeye represented 42% of the 379 sockeye aged. Three fish aged 6_3, 5_3 and 3_2 respectively comprised the remaining 1%. One age 5_2 female was not measured for length and 21 fish could not be aged. Marine ages only were provided for 13 sockeye. The male : female ratio was 0.86 : 1.

Figure 5 shows the relationship between post orbital to hypural plate length and nose/fork length of all 412 sockeye measured at the Docee River fence. Figures 6 and 7 show the same relationship but for females and males respectively. There was no significant difference between the regression coefficients or the elevations when compared using a t test procedure (Zar, 1984)(probability of a difference << 0.001). The similarity between the sexes is largely due to the quality of the fish passing through the fence. The fish sampled were bright silver with few of the sexually dimorphic traits observed in spawning sockeye. The only external sexual trait evident was a very slight kype observed in males.

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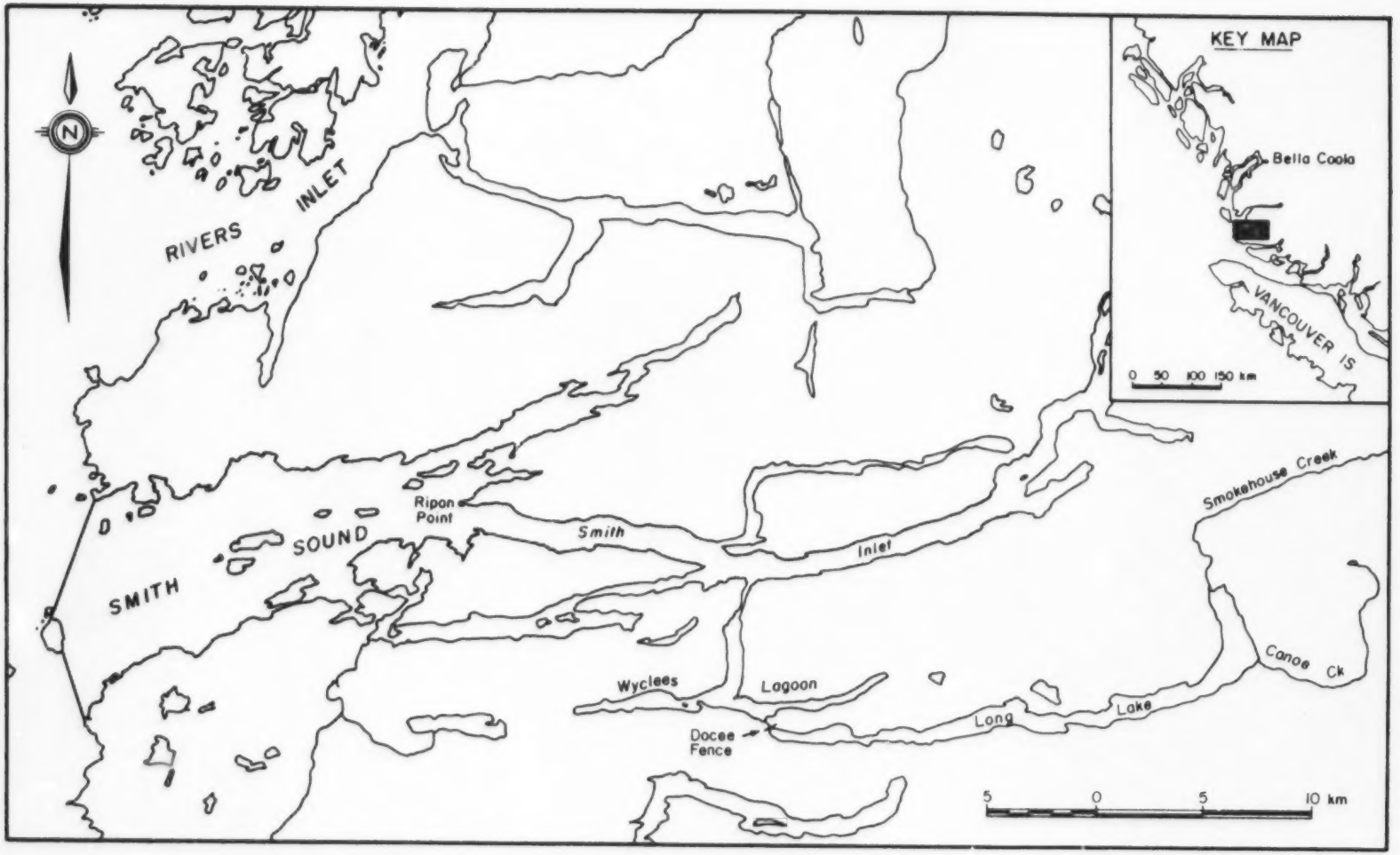


Figure 1: Location of Docee River fence, Smith Sound. Most commercial sockeye fishing occurs in the shaded area.

Table 1. Docee River 1991 daily weather and river levels.

DATE	RIVER LEVEL (m) AM	PM	AM WEATHER	PM WEATHER
26-Jun			high overcast	high overcast
27-Jun	0.67	0.67	overcast	clear, sunny
28-Jun	0.67	0.64	sunny, fog on lake	clear, hot, wind W
29-Jun	0.67	0.73	overcast, heavy rain	overcast, rain
30-Jun	0.79	0.79	cloudy, showers	50% overcast
01-Jul	0.81	0.85	cloudy, showers	cloudy, rain, wind E
02-Jul	0.88	0.88	overcast, showers	60% overcast
03-Jul	0.92	0.92	low overcast	60% overcast
04-Jul	0.88	0.85	clear, 10% cloud	cloudy periods
05-Jul	0.85	0.85	high overcast	50% cloud
06-Jul	0.82	0.73	clear	clear
07-Jul	0.73	0.67	fog	clear
08-Jul	0.70	0.64	fog	clear
09-Jul	0.64	0.61	overcast	overcast
10-Jul	0.64	0.58	overcast	overcast
11-Jul	0.58	0.61	cloudy, showers	overcast, wind E
12-Jul	0.67	0.79	overcast, rain	overcast, heavy rain
13-Jul	0.88	0.92	overcast, rain	high overcast
14-Jul	0.95	0.98	overcast, rain	overcast, rain
15-Jul	0.98	1.04	overcast, rain	overcast, heavy rain
16-Jul	1.10	1.13	high overcast	overcast, showers
17-Jul	1.10	1.04	overcast, fog	50% overcast, rain
18-Jul	0.98	0.92	high overcast	high overcast, rain
19-Jul	0.92	0.85	high overcast	cloud, rain
20-Jul	0.82	0.76	50% cloud	overcast, rain
21-Jul	0.73	0.70	high overcast	clear
22-Jul	0.70	0.61	clear	clear
23-Jul	0.61	0.58	clear	clear
24-Jul	0.58	0.58	high cloud	clear
25-Jul	0.58	0.58	low overcast	low overcast
26-Jul	0.58	0.61	cloudy, fog, rain	overcast
27-Jul	0.67	0.64	cloudy, wind	cloudy, rain
28-Jul	0.61	0.61	high overcast	high overcast
29-Jul	0.61	0.58	20% cloud	20% cloud
30-Jul	0.55	0.49	overcast	clear
31-Jul	0.46	0.46	broken fog	clear, hot, wind NW
01-Aug	0.40	0.37	fog	clear, wind NW
02-Aug	0.37	0.34	high overcast	10% cloud
03-Aug	0.31	0.31	clear, wind NE	5% cloud
04-Aug	0.31	0.31	low cloud, fog, rain	50% cloud, wind NW
05-Aug	0.34	0.31	clear	clear
06-Aug	0.34	0.34	cloudy, fog	cloudy, rain

FIGURE 2: 1991 DOCEE RIVER

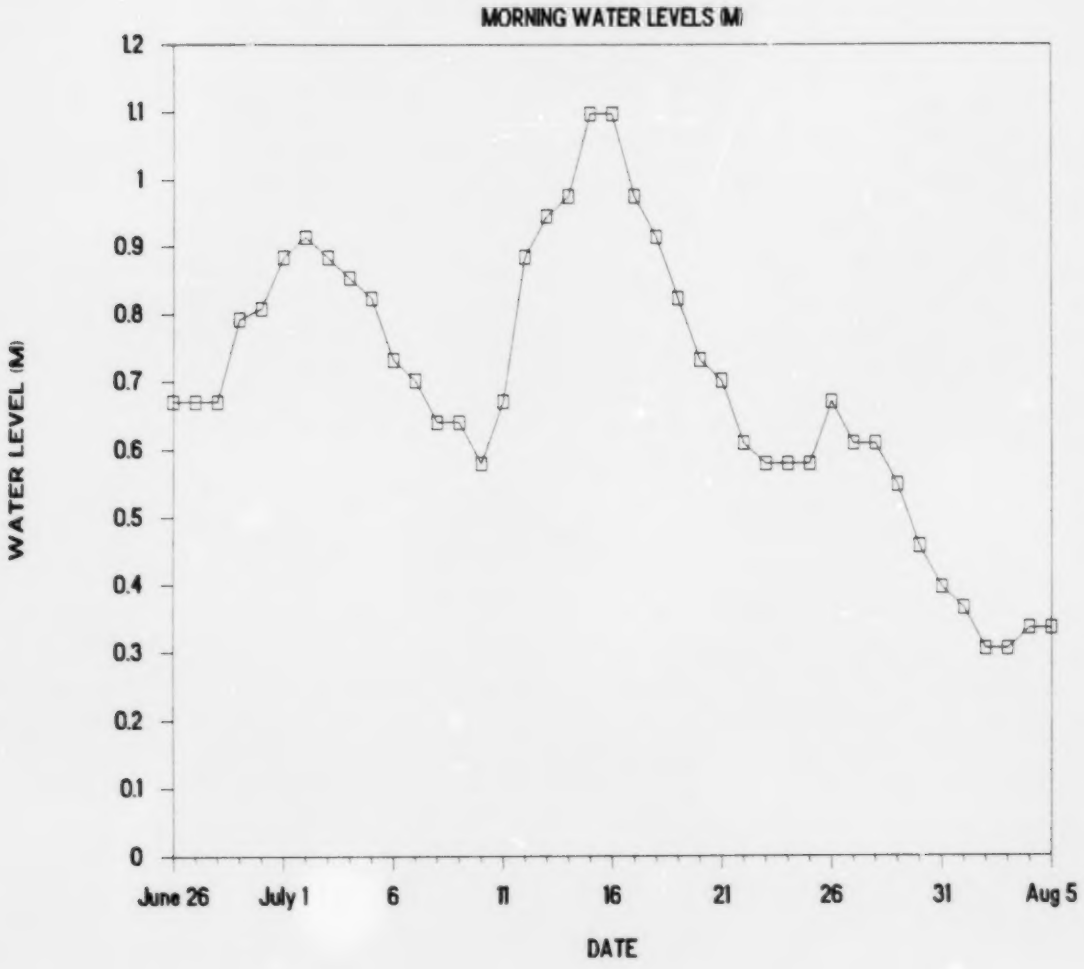


Table 2: 1991 Docee River fence daily sockeye counts.

Date	Daily Total	Cumulative Total	Comments
June 26	0	0	Fence in 18:00
27	0	0	
28	0	0	
29	0	0	
30	28	28	3 seals through fence
July 1	21	49	1 seal through fence
2	3	52	1 seal, 3 trout
3	11	63	
4	202	265	
5	2,216	2,481	
6	2,482	4,963	
7	2,928	7,891	
8	1,757	9,648	
9	1,708	11,356	
10	414	11,770	
11	5,236	17,006	
12	4,958	21,964	
13	21,614	43,578	
14	12,438	56,016	
15	13,791	69,807	
16	15,378	85,185	
17	5,560	90,745	
18	8,019	98,764	
19	7,707	106,471	
20	8,694	115,165	
21	1,864	117,029	
22	5,128	122,157	
23	20,131	142,288	
24	9,075	151,363	Black bear on the beach
25	8,783	160,146	1 seal through fence
26	14,647	174,793	
27	13,215	188,008	
28	30,149	218,157	1 chinook through but returned
29	20,990	239,147	Lagoon open 18:00
30	1,426	240,573	
31	3,947	244,520	
Aug 1	5,402	249,922	
2	3,982	253,904	1 chinook through but returned
3	2,010	255,914	
4	925	256,839	Black bear fishing behind fence
Aug 5	397	257,236	60% of fish with net scars
6	1,642	258,878	
7	438	259,316	Fence out 10:00
Final		260,000	

FIGURE 3: 1991 DOCEE RIVER

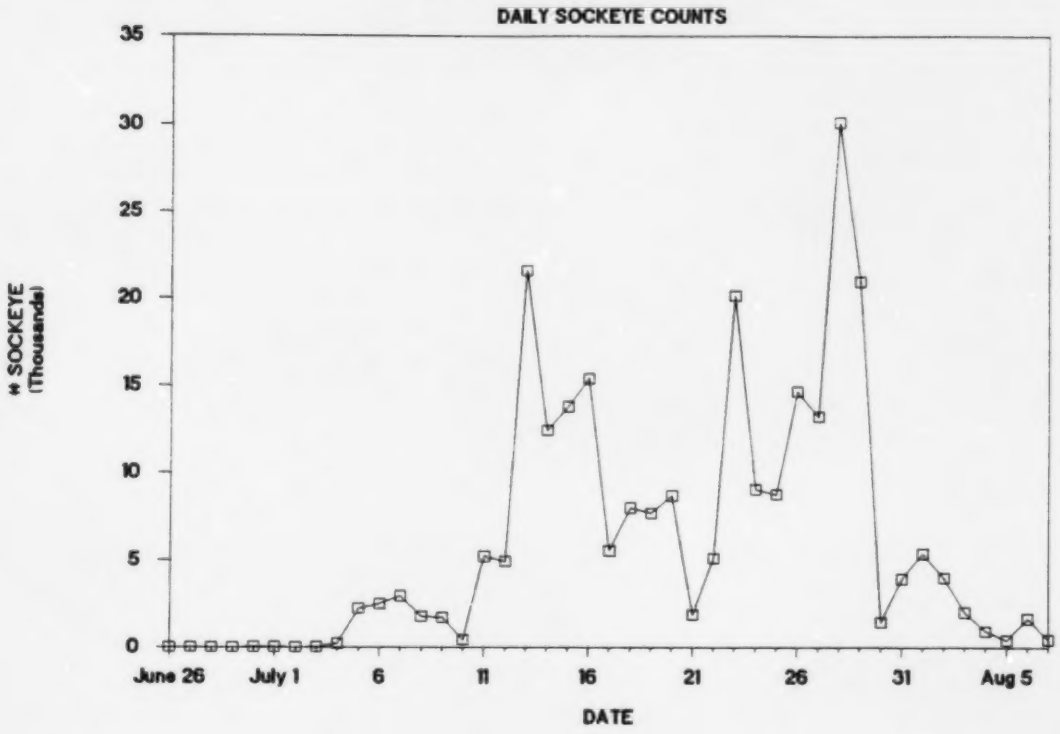


FIGURE 4: 1991 DOCEE RIVER

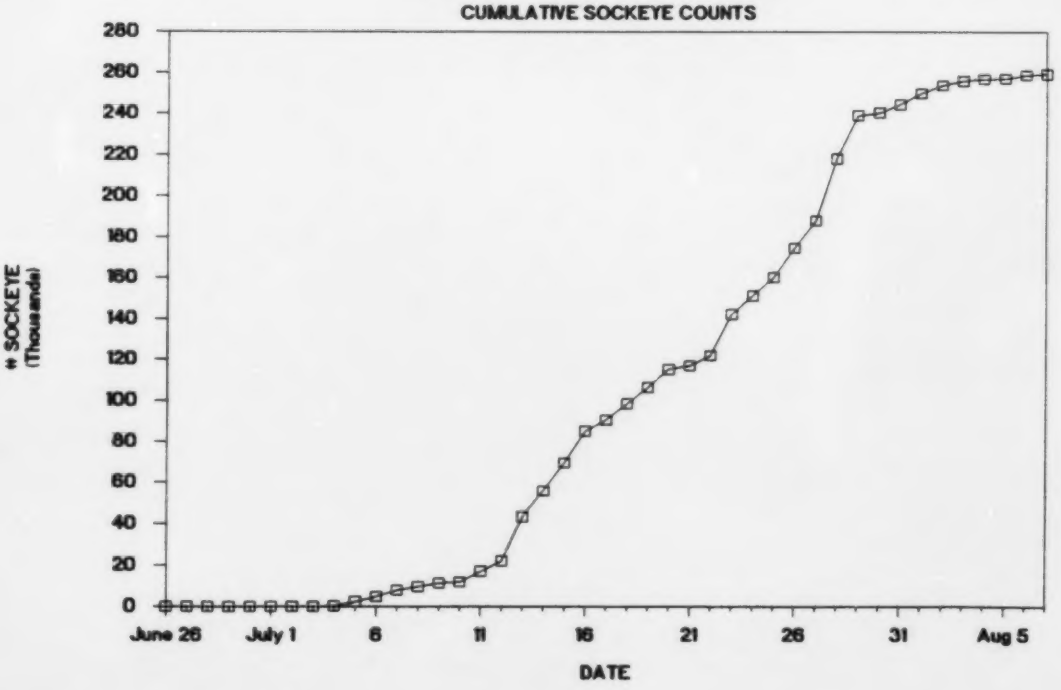


Table 3: AREA 10 GILLNET FIELD CATCH FIGURES - 1991

Date	Opr.	Sockeye	Coho	Pink	Chum	Chin.	Jack	Sthd.
01-Jul	104	1057	174	0	65	12	0	0
02-Jul	78	1462	109	1	36	23	2	1
TFW	182	2519	283	1	101	35	2	1
TTD	182	2519	283	1	101	35	2	1
08-Jul	202	15012	278	4	117	39	0	0
09-Jul	179	13025	939	1	325	112	0	0
TFW	381	28037	1217	5	442	151	0	0
TTD	563	30556	1500	6	543	186	2	1
15-Jul	267	27419	239	2	122	33	4	0
16-Jul	200	22869	311	7	596	24	2	0
17-Jul	338	36989	629	14	873	115	6	0
18-Jul	287	27353	199	4	238	41	1	0
TFW	1092	114630	1378	27	1829	213	13	0
TTD	1655	145186	2878	33	2372	399	15	1
22-Jul	179	30008	69	0	138	38	0	0
23-Jul	342	35903	271	76	796	138	12	2
24-Jul	365	39898	326	110	1133	128	10	1
25-Jul	291	38291	120	223	598	64	9	0
26-Jul	275	29877	145	288	605	58	8	0
27-Jul	182	26080	140	364	692	20	0	0
28-Jul	138	16470	281	269	988	31	1	0
TFW	1772	216527	1352	1330	4950	477	40	3
TTD	3427	361713	4230	1363	7322	876	55	4
29-Jul	117	16020	365	802	928	77	3	2
30-Jul	176	13427	359	1021	1070	24	14	3
31-Jul	133	13369	358	771	772	24	7	0
01-Aug	93	9593	243	585	680	17	3	0
02-Aug	62	10241	186	452	833	31	3	2
03-Aug	36	4347	106	262	588	14	0	1
04-Aug	52	7381	203	747	761	47	0	3
TFW	669	74378	1820	4640	5632	234	30	11
TTD	4096	436091	6050	6003	12954	1110	85	15
05-Aug	41	3746	146	614	523	11	0	0
06-Aug	37	3268	185	543	446	37	7	0
07-Aug	14	2579	31	3	17	0	0	0
08-Aug	13	3264	40	34	18	0	0	0
09-Aug	7	1632	46	16	9	6	0	0
10-Aug	6	1491	56	3	0	3	0	0
11-Aug	6	1064	59	0	0	0	0	0
TFW	124	17044	563	1213	1013	57	7	0
TTD	4220	453135	6613	7216	13967	1167	92	15
12-Aug	6	1155	46	2	0	5	0	0
TFW	6	1155	46	2	0	5	0	0
TTD	4226	454290	6659	7218	13967	1172	92	15

Table 4: Length frequency at age of 1991 Docee River Sockeye.

HYPURAL LENGTH (mm)	FREQUENCY									
	2 Freshwater years				UNKNOWN		Unknown Freshwater			
	AGE 4		AGE 5		AGE		3 MARINE		2 MARINE	
Sex>	M	F	M	F	M	F	M	F	M	F
390		1								
400		2								
410	3	1				1				
420	9	6			1					
430	10	13	1	1	2	1				
440	16	10	1		1					
450	18	10		2	1	2		1		
460	15	13	1	4	1		1			
470	11	6	1	4	1	1				
480	7	1	2	13	1	1	1			
490	3	1	2	11		1				
500	2		11	30		3		2	1	
510	1		12	21		4		3		
520	1		18	20	4	3	1	1		
530			15	18	1	2	1	1		
540			11	11	2					
550			2	2						
560			1							
TOTAL (N)	96	64	78	137	15	19	4	8	1	0
Mean (mm)	449	441	513	504						
STD (mm)	22	20	22	27						

Notes: Not appearing in the table above are one male, 330 mm, age 32; one male, 455 mm, age 63; and one female, 440 mm, age 53. Sockeye with age information for only marine years (ie. 3M or 2M) are included in the length frequencies of unknown age sockeye. One female sockeye age 52 was not measured for length. M = male, F = female.

FIGURE 5: DOCEE RIVER SOCKEYE LENGTHS

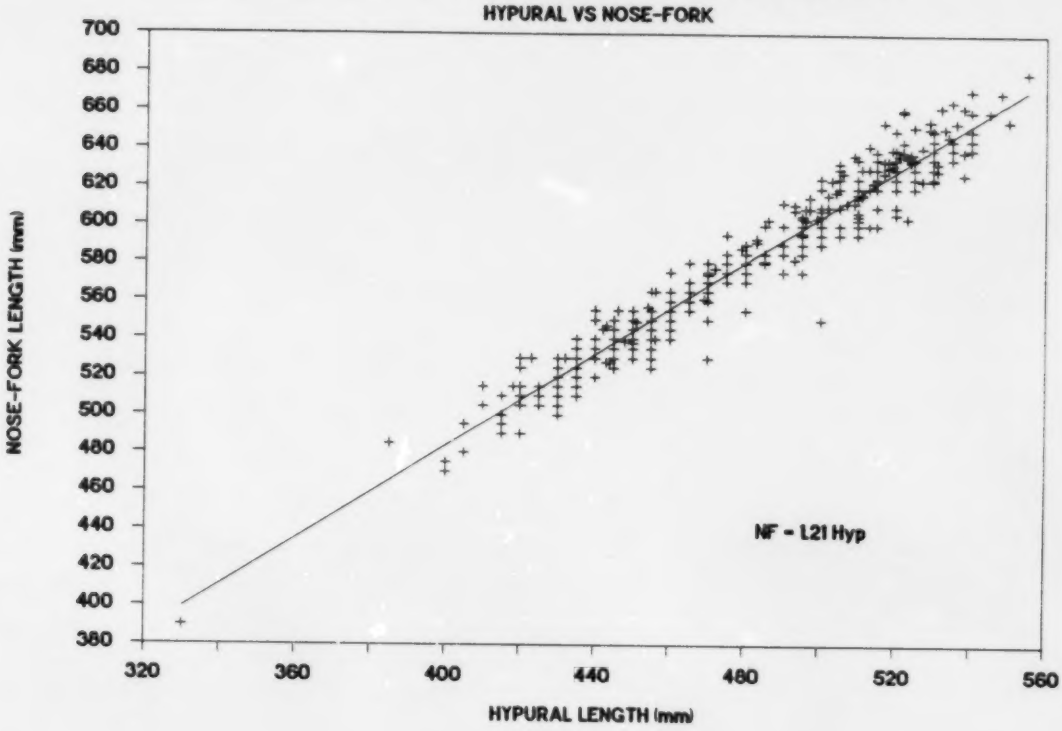


FIGURE 6: DOCEE RIVER FEMALE SOCKEYE

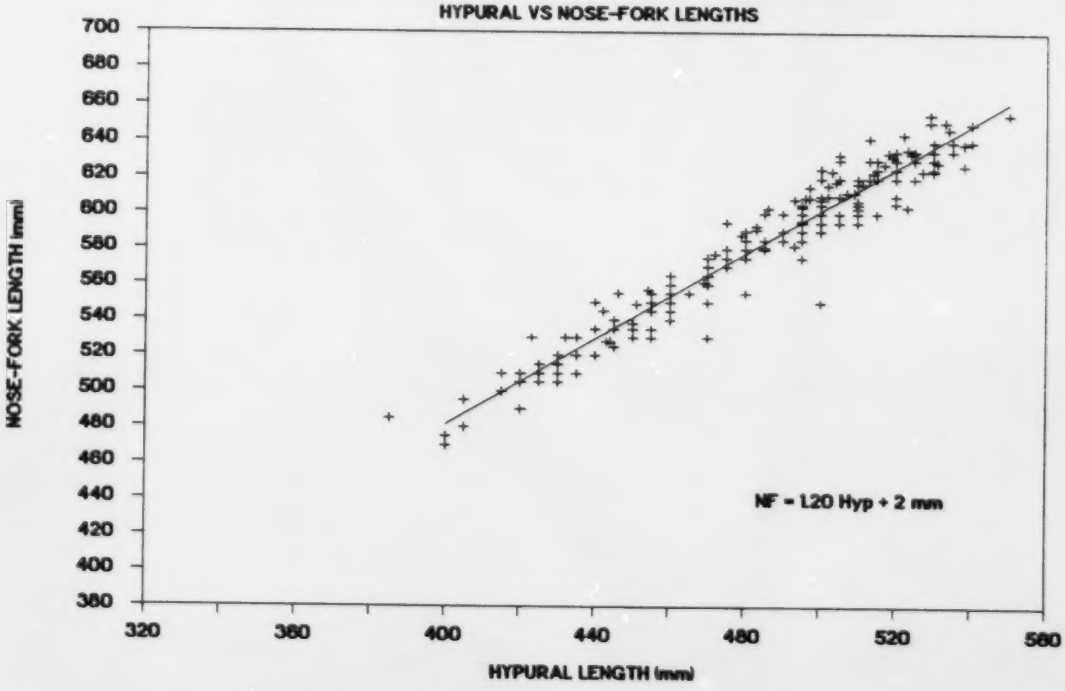
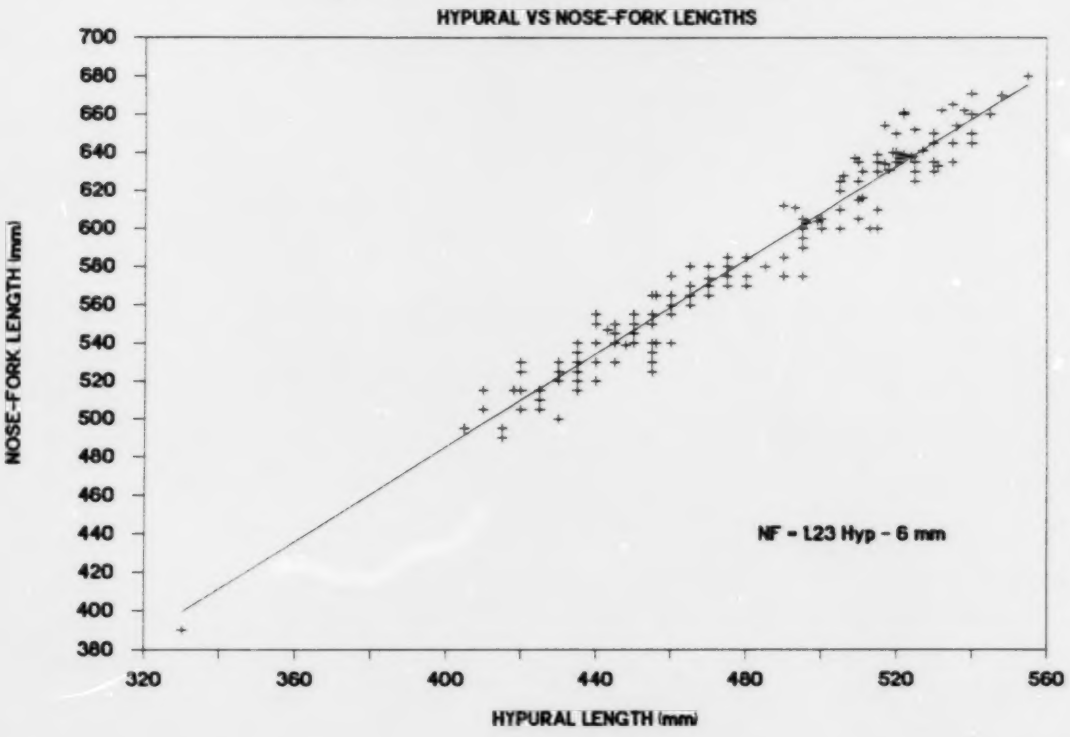


FIGURE 7: DOCEE RIVER MALE SOCKEYE



Appendix 1: 1991 Docee River fence sockeye samples.

DATE SAMPLED	AGE	FW	LENGTH HYP	LENGTH N/F	SEX	DATE SAMPLED	AGE	FW	LENGTH HYP	LENGTH N/F	SEX
05-Jul	5	2	517	628	F	19-Jul	5	2	510	600	F
06-Jul	RG		522	644	F	19-Jul	4	2	450	535	F
06-Jul	5	2	493	608	F	19-Jul	4	2	470	565	F
06-Jul	5	2	511	617	F	19-Jul	5	2	510	625	M
06-Jul	RG		519	640	M	19-Jul	5	2	515	610	M
06-Jul	5	2	520	606	F	19-Jul	4	2	435	520	M
07-Jul	5	2	511	630	M	19-Jul	5	2	530	645	M
07-Jul	5	2	548	670	M	19-Jul	5	2	495	605	F
07-Jul	3M		495	604	F	19-Jul	5	2	535	640	F
07-Jul	5	2	483	593	F	19-Jul	4	2	485	580	M
07-Jul	5	2	495	596	F	19-Jul	5	2	505	600	F
07-Jul	5	2	540	671	M	19-Jul	4	2	455	530	M
07-Jul	5	2	502	616	F	19-Jul	4	2	455	530	F
07-Jul	3M		497	615	F	19-Jul	5	2	530	630	M
07-Jul	5	2	509	612	F	19-Jul	4	2	470	565	F
07-Jul	5	2	513	620	F	19-Jul	5	2	515	620	F
07-Jul	5	2	538	639	F	19-Jul	5	2	495	590	F
07-Jul	5	2	530	624	F	19-Jul	5	2	510	605	M
07-Jul	5	2	538	627	F	19-Jul	4	2	445	545	M
09-Jul	5	2	529	651	F	19-Jul	5	2	480	580	F
09-Jul	3M		504	618	F	19-Jul	5	2	480	575	F
09-Jul	5	2	514	623	F	19-Jul	4	2	460	560	M
09-Jul	4	2	423	530	F	19-Jul	4	2	465	565	M
09-Jul	5	2			F	19-Jul	4	2	455	555	M
09-Jul	5	2	529	655	F	19-Jul	4	2	460	545	F
09-Jul	4	2	418	515	M	19-Jul	5	2	540	660	M
09-Jul	5	2	534	647	F	19-Jul	4	2	470	565	M
09-Jul	5	2	525	652	M	19-Jul	4	2	425	510	F
10-Jul	4	2	448	539	M	19-Jul	4	2	425	510	M
12-Jul	5	2	532	662	M	19-Jul	5	2	475	575	M
13-Jul	5	2	533	651	F	19-Jul	4	2	455	535	F
13-Jul	5	2	509	637	M	19-Jul	5	2	495	600	F
13-Jul	4	2	446	555	F	19-Jul	4	2	445	550	M
13-Jul	5	2	522	639	M	19-Jul	5	2	515	620	F
13-Jul	5	2	513	642	F	19-Jul	4	2	450	545	M
13-Jul	5	2	454	557	F	19-Jul	4	2	455	555	M
13-Jul	5	2	522	661	M	19-Jul	4	2	430	525	M
13-Jul	5	2	493	611	M	19-Jul	4	2	425	505	F
13-Jul	5	2	519	632	F	19-Jul	4	2	450	545	M
13-Jul	5	2	483	591	F	19-Jul	5	2	500	605	M
13-Jul	5	2	524	634	F	19-Jul	5	2	500	595	F
13-Jul	5	2	531	629	F	19-Jul	4	2	420	490	F
13-Jul	5	2	513	630	F	19-Jul	5	2	495	600	F
13-Jul	4	2	432	530	F	19-Jul	5	2	500	600	F
13-Jul	4	2	450	555	M	19-Jul	5	2	460	560	F
13-Jul	5	2	486	603	F	19-Jul	4	2	450	540	M
13-Jul	5	2	518	634	F	19-Jul	4	2	465	560	M
13-Jul	5	2	496	603	M	19-Jul	4	2	460	555	M
13-Jul	5	2	505	633	F	19-Jul	5	2	520	625	F
13-Jul	5	2	536	654	M	19-Jul	5	2	495	595	F
15-Jul	4	2	443	528	F	19-Jul	5	2	500	600	M
15-Jul	UD		472	577	F	19-Jul	5	2	525	635	F
15-Jul	5	2	497	609	F	19-Jul	4	2	475	585	M

Appendix 1: 1991 Docee River fence sockeye samples.

DATE SAMPLED	AGE	FW	LENGTH HYP	LENGTH N/F	SEX
15-Jul	5	2	531	633	M
15-Jul	5	2	510	607	F
15-Jul	5	2	527	641	M
15-Jul	RG		517	628	F
15-Jul	5	2	517	654	M
15-Jul	5	2	499	604	M
15-Jul	5	2	510	617	F
15-Jul	4	2	444	528	F
15-Jul	5	2	490	612	M
15-Jul	5	2	503	624	F
15-Jul	4	2	451	549	F
15-Jul	5	2	527	624	F
15-Jul	RG		485	581	F
15-Jul	5	2	521	637	M
15-Jul	4	2	443	547	M
15-Jul	5	2	479	588	F
15-Jul	5	2	524	638	M
15-Jul	RG		538	662	M
15-Jul	4	2	511	616	M
15-Jul	5	2	523	636	F
15-Jul	W		518	631	M
15-Jul	3M		517	634	M
14-Jul	4	2	420	515	M
14-Jul	5	2	485	580	M
14-Jul	5	2	495	595	F
14-Jul	4	2	450	545	M
14-Jul	5	2	500	605	M
14-Jul	4	2	435	540	M
14-Jul	RG		450	550	M
15-Jul	5	2	505	610	F
15-Jul	5	2	530	645	M
15-Jul	RG		515	625	F
15-Jul	3M		530	635	M
15-Jul	5	2	535	665	M
15-Jul	5	2	525	625	M
15-Jul	4	2	465	565	M
15-Jul	4	2	456	540	M
15-Jul	5	2	522	660	M
15-Jul	5	2	500	608	F
15-Jul	5	2	510	603	F
15-Jul	3M		530	630	F
15-Jul	2M		493	582	F
15-Jul	5	2	523	604	F
15-Jul	5	2	502	610	F
15-Jul	5	2	513	600	M
15-Jul	5	2	510	595	F
15-Jul	4	2	460	540	M
15-Jul	5	2	469	561	F
15-Jul	5	2	505	620	F
15-Jul	5	2	496	609	F
15-Jul	RG		515	639	M
15-Jul	4	2	442	545	F
16-Jul	5	2	540	650	M
19-Jul	4	2	435	535	M
19-Jul	5	2	480	585	F
19-Jul	5	2	545	660	M
19-Jul	4	2	410	505	M
19-Jul	5	2	530	650	M
19-Jul	4	2	460	565	M
19-Jul	4	2	430	530	M
19-Jul	4	2	415	500	F
19-Jul	5	2	470	575	F
19-Jul	4	2	505	625	M
19-Jul	4	2	475	570	M
19-Jul	4	2	425	515	M
19-Jul	4	2	405	495	F
19-Jul	4	2	430	530	M
19-Jul	4	2	470	570	M
19-Jul	3M		445	540	F
19-Jul	5	2	485	585	F
19-Jul	RG		465	555	F
19-Jul	4	2	440	520	F
19-Jul	4	2	430	505	F
19-Jul	4	2	465	580	M
19-Jul	5	2	500	600	M
19-Jul	4	2	410	515	M
19-Jul	5	2	520	620	F
19-Jul	5	2	500	600	F
19-Jul	5	2	500	590	F
19-Jul	5	2	520	640	M
19-Jul	5	2	515	625	F
19-Jul	4	2	470	550	F
19-Jul	5	2	460	545	F
19-Jul	4	2	425	510	F
19-Jul	5	2	520	640	M
19-Jul	4	2	435	515	M
19-Jul	4	2	430	505	F
19-Jul	4	2	420	515	M
19-Jul	5	2	475	570	F
19-Jul	5	2	515	635	M
19-Jul	4	2	475	570	M
19-Jul	5	2	495	605	F
19-Jul	4	2	450	550	M
19-Jul	5	2	435	535	M
19-Jul	5	2	455	555	F
19-Jul	5	2	505	625	M
19-Jul	4	2	485	600	F
19-Jul	4	2	460	565	F
19-Jul	P		420	515	M
19-Jul	4	2	465	580	M
23-Jul	5	2	500	625	F
23-Jul	5	2	520	635	F
23-Jul	4	2	405	495	M
23-Jul	COHO		470	585	M
23-Jul	COHO		535	635	F
23-Jul	4	2	430	525	M

Appendix 1: 1991 Docee River fence sockeye samples.

DATE SAMPLED	AGE	FW	LENGTH HYP	LENGTH N/F	SEX	DATE SAMPLED	AGE	FW	LENGTH HYP	LENGTH N/F	SEX
16-Jul	5	2	515	610	M	23-Jul	4	2	430	530	M
16-Jul	4	2	495	575	M	23-Jul	4	2	435	530	M
16-Jul	4	2	480	555	F	27-Jul	5	2	485	580	F
16-Jul	5	2	525	630	F	27-Jul	4	2	455	565	M
16-Jul	5	2	550	655	F	27-Jul	W	2	405	480	F
16-Jul	4	2	490	575	M	27-Jul	4	2	440	550	F
16-Jul	5	2	525	620	F	27-Jul	4	2	460	555	F
16-Jul	4	2	495	595	M	27-Jul	5	2	470	560	F
16-Jul	5	2	540	645	M	27-Jul	5	2	490	600	F
16-Jul	4	2	470	575	F	27-Jul	4	2	420	510	F
16-Jul	5	2	475	580	F	27-Jul	4	2	460	540	F
16-Jul	5	2	480	585	M	27-Jul	4	2	460	550	F
16-Jul	3M		515	630	F	27-Jul	4	2	465	565	M
16-Jul	5	2	505	600	M	27-Jul	4	2	440	520	F
16-Jul	4	2	480	570	M	27-Jul	5	2	475	595	F
16-Jul	5	2	510	625	M	27-Jul	5	2	485	580	F
16-Jul	5	2	535	645	M	27-Jul	5	2	525	630	F
16-Jul	5	2	550	655	F	27-Jul	COHO		520	620	M
16-Jul	4	2	450	545	M	27-Jul	4	2	450	550	M
16-Jul	5	2	505	610	M	27-Jul	4	2	445	550	M
16-Jul	4	2	465	560	M	27-Jul	5	2	470	570	F
16-Jul	5	2	505	595	F	27-Jul	4	2	455	550	F
16-Jul	5	2	530	635	F	28-Jul	COHO		505	600	M
16-Jul	5	2	525	635	M	28-Jul	5	2	535	640	F
16-Jul	5	2	495	590	M	28-Jul	5	2	500	605	M
16-Jul	RG		430	500	M	28-Jul	4	2	435	510	F
16-Jul	5	2	510	615	M	28-Jul	4	2	430	515	F
16-Jul	5	2	480	580	F	28-Jul	4	2	420	530	M
16-Jul	RG		465	570	M	28-Jul	4	2	460	565	M
16-Jul	5	2	520	650	M	28-Jul	5	2	450	530	F
16-Jul	5	2	495	600	M	28-Jul	5	2	520	650	M
16-Jul	6	3	455	540	M	28-Jul	5	2	535	635	F
16-Jul	5	2	495	585	F	28-Jul	4	2	435	525	M
16-Jul	4	2	440	550	M	28-Jul	4	2	450	530	F
16-Jul	4	2	415	490	M	28-Jul	5	2	480	585	F
16-Jul	5	2	505	610	M	28-Jul	5	2	515	600	F
16-Jul	5	2	505	600	F	28-Jul	4	2	470	560	F
16-Jul	5	2	520	635	M	28-Jul	4	2	440	520	M
16-Jul	5	2	520	635	M	28-Jul	5	2	530	630	F
16-Jul	5	2	530	640	F	28-Jul	5	2	510	605	F
16-Jul	5	2	475	575	F	28-Jul	5	2	490	590	F
16-Jul	4	2	455	545	F	28-Jul	5	2	495	600	F
16-Jul	4	2	475	580	M	28-Jul	4	2	445	540	F
16-Jul	5	2	540	660	M	28-Jul	5	2	530	625	F
16-Jul	5	2	540	645	M	28-Jul	RG		445	535	F
16-Jul	5	2	520	630	F	28-Jul	4	2	440	520	F
16-Jul	5	2	530	630	F	28-Jul	4	2	415	495	M
16-Jul	4	2	435	515	M	28-Jul	4	2	455	535	M
16-Jul	5	2	505	630	F	28-Jul	5	2	495	595	F
16-Jul	4	2	480	585	M	28-Jul	5	2	530	650	M
16-Jul	5	2	495	595	F	28-Jul	4	2	470	580	M
16-Jul	5	2	555	680	M	28-Jul	5	2	430	530	M
16-Jul	5	2	530	635	F	28-Jul	4	2	420	505	F

Appendix 1: 1991 Docee River fence sockeye samples.

DATE SAMPLED	AGE	FW	LENGTH HYP	LENGTH N/F	SEX
16-Jul	5	2	515	600	M
16-Jul	4	2	440	530	M
16-Jul	4	2	435	540	M
16-Jul	5	2	530	635	F
16-Jul	5	2	505	600	F
16-Jul	5	2	515	630	M
16-Jul	5	2	495	605	M
16-Jul	5	2	525	630	M
16-Jul	4	2	490	585	M
16-Jul	3M		455	550	M
16-Jul	4	2	455	525	M
16-Jul	5	2	490	585	F
16-Jul	RG		505	610	F
16-Jul	4	2	460	555	F
16-Jul	3M		510	620	F
16-Jul	RG		535	635	M
16-Jul	4	2	480	575	M
16-Jul	4	2	445	530	M
16-Jul	5	2	520	610	F
16-Jul	4	2	460	545	F
16-Jul	4	2	460	575	M
16-Jul	4	2	460	565	M
16-Jul	5	2	490	585	F
16-Jul	5	2	500	600	F
16-Jul	5	2	515	610	M
16-Jul	5	2	480	580	F
17-Jul	3M		507	612	F
17-Jul	4	2	450	538	F
17-Jul	4	2	470	574	M
17-Jul	5	2	506	628	M
18-Jul	4	2	456	565	M
18-Jul	5	2	500	620	F
18-Jul	4	2	470	530	F
18-Jul	5	2	505	620	F
18-Jul	5	2	480	580	F
18-Jul	5	2	540	650	F
18-Jul	RG		430	510	F
18-Jul	5	2	510	635	M
18-Jul	4	2	430	505	F
18-Jul	3M		475	580	M
18-Jul	5	2	495	575	F
18-Jul	5	2	510	605	F
18-Jul	5	2	520	635	M
18-Jul	4	2	445	530	M
18-Jul	5	2	505	600	F
19-Jul	4	2	420	505	M
19-Jul	5	2	535	635	F
19-Jul	5	2	495	590	F
19-Jul	5	2	540	640	F

DATE SAMPLED	AGE	FW	LENGTH HYP	LENGTH N/F	SEX
29-Jul	4	2	400	470	F
29-Jul	5	2	450	530	F
29-Jul	4	2	385	485	F
29-Jul	4	2	425	505	F
29-Jul	4	2	445	525	F
29-Jul	4	2	440	535	F
29-Jul	4	2	425	515	F
29-Jul	4	2	445	540	M
29-Jul	5	2	490	590	F
29-Jul	5	2	500	605	F
29-Jul	4	2	450	530	F
29-Jul	4	2	435	525	M
29-Jul	RG		425	505	M
29-Jul	4	2	430	520	F
29-Jul	5	2	500	610	F
29-Jul	3	2	330	390	M
29-Jul	5	2	505	620	M
29-Jul	5	2	460	540	M
29-Jul	5	2	430	520	F
29-Jul	5	2	520	630	F
29-Jul	5	2	520	625	F
29-Jul	5	2	465	580	M
29-Jul	4	2	430	520	M
29-Jul	4	2	450	550	M
29-Jul	4	2	420	525	M
29-Jul	4	2	415	510	F
29-Jul	4	2	430	520	F
29-Jul	5	2	480	590	F
29-Jul	4	2	420	515	M
29-Jul	4	2	430	520	M
29-Jul	4	2	420	510	F
29-Jul	4	2	435	520	F
29-Jul	4	2	425	510	M
29-Jul	4	2	400	475	F
29-Jul	4	2	445	545	M
29-Jul	4	2	435	520	F
29-Jul	4	2	440	540	M
29-Jul	4	2	440	520	M
29-Jul	5	2	500	550	F
29-Jul	5	2	515	630	M
29-Jul	4	2	435	530	F
29-Jul	4	2	430	515	F
29-Jul	5	2	515	630	M
29-Jul	4	2	460	550	F
29-Jul	5	2	500	610	F
29-Jul	4	2	440	540	M
29-Jul	5	3	440	535	F
29-Jul	RG		440	540	M
29-Jul	4	2	440	555	M
29-Jul	5	2	500	590	F

Appendix 2: 1991 TIDE HEIGHTS (m)